

U.S. Serial No. 10/673,534

Response to the Office action of November 2, 2005

Remarks

The applicant has carefully considered the Office action dated November 2, 2005, and the art cited therein. Claims 1-11 and 22-26 are pending and at issue in the above identified patent application; claims 12-21 were canceled without prejudice in response to a prior restriction requirement. Of the claims at issue, claims 1 and 22 are independent. In view of the following remarks, reconsideration and allowance of the application are respectfully requested.

The Rejections Under 35 U.S.C. §§ 102 & 103

Claims 1-11

Independent claim 1 is directed to an external cavity optical transmitter and recites, *inter alia*, a gain chip to emit optical energy, the gain chip including a reflective portion, a grating to receive optical energy emitted by the gain chip, and a reflector to receive optical energy reflected from the grating, the reflector and the reflective portion of the gain chip forming an optical resonant structure. Additionally, claim 1 recites a processing unit coupled to an actuator to position a lens at a location to select a wavelength of operation of the optical resonant structure.

Claim 1 was rejected as being anticipated by Kando (US 5,044,718). Kando discloses various structures of an optical head for use in reading optical media, such as compact disks. Kando also disclosed various control techniques for properly focusing optical energy on the medium to be read by the optical head. Importantly, Kando specifies that the light source is a semiconductor laser, which is a self-contained unit configured to emit coherent light at a fixed wavelength. The light reflections and routing disclosed in the Kando reference are carried out for reading information on an optical media and to properly focus the light from the semiconductor laser on the optical media.

As an initial matter, claim 1 is directed to an external cavity optical transmitter. This is completely different from Kando, which uses semiconductor lasers to emit coherent light, because semiconductor lasers are not external cavity devices. That is, semiconductor lasers include internal resonant structures, or reflectors, to facilitate lasing at a selected frequency. From this fundamental difference flows a number of additional differences between claim 1 and the Kando reference. For example, claim 1 recites that a reflective portion of the gain

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chip and a reflector, which receives optical energy from a grating, form an optical resonant structure. This is not found in Kando because the only optical resonant structure of Kando is found within the semiconductor laser itself because it is an internal cavity device, which does not receive energy from the gratings of Kando. While the Office action cites column 24, line 48 of Kando for disclosure of this premise, the cited portion of Kando merely states that a semiconductor laser, which, again, is an internal cavity device, may be used in the Kando system. The Office action fails to cite any portion of Kando for the premise of forming an optical resonant structure, as recited by claim 1.

Further, because Kando uses a semiconductor laser and moves a lens to focus that laser, Kando does not disclose that an actuator can be used to position the lens at a location to select a wavelength of operation of the optical resonant structure. To the contrary, the lens position of Kando merely focuses the optical energy of a pre-defined wavelength and does not affect any optical resonant structure in Kando. While the Office action cites column 27, lines 10-58 of Kando, this text of Kando is merely directed to focusing the light from the semiconductor laser into convergent, divergent, or parallel beams of light and does not disclose or suggest that the lens position selects an operational wavelength of the resonant structure, as recited by the claims.

It is well settled that "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 2 USPQ2d 1051 (Fed. Cir. 1987). Based at least on the foregoing deficiencies of Kando, it is respectfully submitted that claim 1 and claims 2-11 dependent thereon are in condition for allowance.

Claims 22-26

Claim 22 is directed to a method of assembling an external cavity optical transmitter. The recited method includes, *inter alia*, placing a mirror on a substrate to form a resonant cavity between the mirror and a gain chip and changing a positional setting of an actuator to cause a lens to be translated to a position that yields a desired wavelength of operation.

As noted above, Kando is directed to an optical head system using a semiconductor laser. Kando discloses use of an internal cavity semiconductor laser, not the use of an external cavity system. Accordingly, Kando does not disclose or suggest placing a mirror on

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a substrate to form a resonant cavity between the mirror and a gain chip. Additionally, as noted above, there is no disclosure or suggestion in Kando to vary the position of a lens to change a wavelength of operation. To the contrary, the wavelength of operation of Kando is fixed by the semiconductor laser and the coherent light from the semiconductor laser is focused by the lens of Kando. Kando's lens does not change the wavelength of operation of the system.

Based at least on these deficiencies in Kando, it is respectfully submitted that Kando fails to anticipate claim 22. Thus, it is respectfully submitted that claim 22 and claims 23-26 dependent thereon are in condition for allowance.


Conclusion

Reconsideration of the application and allowance thereof are respectfully requested. If there is any matter that the examiner would like to discuss, the examiner is invited to contact the undersigned representative at the telephone number set forth below.

Additionally, the undersigned respectfully requests the examiner to provide the undersigned with an initialed copy of the Form PTO-1449 that was filed on October 25, 2005.

Respectfully submitted,
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